2C $\lim_{h\to 0} \dfrac{\frac{1}{(x+h)^2} - \frac{1}{x^2}}{x+h-x}$ $\quad \dfrac{\frac{x^2-(x+h)^2}{(x+h)^2x^2}}{h} = \dfrac{\frac{x^2-x^2-2xh-h^2}{(x+h)^2x^2}}{h}$

$\lim_{h\to 0} \dfrac{\frac{-2xh-h^2}{(x+h)^2(x^2)}}{h} = \dfrac{-2x-h}{(x+h)^2x^2} = \dfrac{-2x}{x^2x^2} = \boxed{\dfrac{-2}{x^3}}$

2F $\lim_{h\to 0} \dfrac{\frac{3(x+h)}{(x+h)^2+1} - \frac{3x}{x^2+1}}{x+h-x} = \dfrac{\frac{3(x+h)(x^2+1) - 3x\left((x+h)^2+1\right)}{[(x+h)^2+1][x^2+1]}}{h}$

$\lim_{h\to 0} \dfrac{(3x+3h)(x^2+1) - 3x[x^2+2xh+h^2+1]}{h}$

$\lim_{h\to 0} \dfrac{\cancel{3x^3} + \cancel{3x} + 3hx^2 + 3h - \cancel{3x^3} - 6x^2h - 3xh^2 - \cancel{3x}}{h}$

$\lim_{h\to 0} \dfrac{3hx^2+3h-6x^2h-3xh^2}{h}$

$\lim h\to 0 \quad 3x^2+3-6x^2-3xh = \boxed{9x^2+3-3x}$

3A $y=\sqrt{x}$ $\quad \lim_{h\to 0} \dfrac{(\sqrt{x+h}-\sqrt{x})}{x+h-x} \dfrac{(\sqrt{x+h}+\sqrt{x})}{(\sqrt{x+h}+\sqrt{x})} =$

$\lim_{h\to 0} \dfrac{x+h-x}{h(\sqrt{x+h}+\sqrt{x})} = \dfrac{h}{h(\sqrt{x+h}+\sqrt{x})} = \dfrac{1}{\sqrt{x+h}+\sqrt{x}} = \boxed{\dfrac{1}{2\sqrt{x}}}$

at $x=4$ $\quad \dfrac{1}{2\sqrt{4}} = \boxed{\dfrac{1}{4}}$

$\boxed{3C}$ $\quad \dfrac{2}{\sqrt{x}} \quad \lim_{h\to 0} \dfrac{\frac{2}{\sqrt{x+h}} - \frac{2}{\sqrt{x}}}{x+h-x} = \dfrac{\frac{(2\sqrt{x}-2\sqrt{x+h})}{\sqrt{x}\sqrt{x+h}}}{h}$

$\dfrac{\frac{2(\sqrt{x}-\sqrt{x+h})}{\sqrt{x}\sqrt{x+h}} \frac{(\sqrt{x}+\sqrt{x+h})}{\sqrt{x}+\sqrt{x+h}}}{h} = \dfrac{\frac{2(x-x+h)}{\sqrt{x}\sqrt{x+h}(\sqrt{x}+\sqrt{x+h})}}{h}$